

Amendments to the Claims

1. (currently amended) A color correction method comprising:

obtaining reference outputs from an image sensor using a color image array, said reference outputs being indicative of outputs for a plurality of known reference colors, said plurality of known reference colors including at least three 3 primary colors, and at least two 2 other non-primary colors ~~other than said primary colors~~;

*Amended* determining an error measure for some of said plurality of known reference colors between said reference outputs and what would be expected for each of said reference outputs;

determining a weighted error measure for at least one other of said plurality of known reference colors between said reference outputs and what would be expected for each of said reference outputs;

obtaining ~~a an~~ color correction matrix to minimize ~~that minimizes~~ said error measure or weighted error measure for each of said plurality of reference colors; and

using said color correction matrix to simultaneously optimize color correction ~~the system~~ for each of said plurality of reference colors ~~in said color reference chart and to obtain a color-corrected image.~~

2. (canceled)

3. (currently amended) A method as in claim 1 wherein said ~~comparing color~~ correction method comprises obtaining, for each of the plurality of colors,

$$(G_n' [\text{what expect to see}] - G_c [\text{actual}])^2 \cdot \underline{W_i} = G_E$$

$$(R_n' - R_c)^2 \cdot \underline{W_i} = R_E$$

$$(B_n' - B_c)^2 \cdot \underline{W_i} = B_E$$

where  $G_n'$ ,  $R_n'$  and  $B_n'$  are expected color values,  $G_c$ ,  $R_c$  and  $B_c$  are actual color values, and  $W_i$  is a weighting factor for each of colors  $i$ ,  $i$  varying from 1-j colors, and minimizing  $G_E$ ,  $R_E$ , and  $B_E$  for each of the plurality of colors.

4. (currently amended) A method as in claim 3 wherein there are at least seven 7 colors.

5. (currently amended) A method as in claim 3 wherein there are twenty-four 24 colors.

6. (currently amended) An image sensor apparatus, comprising:  
 an image sensor device, operating using a color filter array which provides color filtering such that colors transmitted to each pixel must be interpolated are measured to determine all color components that actually impinge on an area of said pixel; and  
 an image processor interpolater, operating according to a color correction matrix, said color correction matrix being adjusted according to at least three 3 primary colors, and at least two additional non-primary colors other than said primary color wherein said color correction matrix has some colors weighted for color correction more than other colors.

7. (currently amended) An apparatus as in claim 6 wherein said color correction matrix is adjusted according to at least three 3 primary colors, white, and at least three 3 colors other than said three 3 primary colors and white.

8. (currently amended) ~~A device~~ An apparatus as in claim 6 wherein said ~~adjustment~~ color correction matrix is adjusted based on is according to a total of twenty-four 24 colors.

9. (currently amended) ~~A system~~ An apparatus as in claim 6 wherein said color correction matrix operation operates according to

$$(G_n' [\text{what expect to see}] - G_c [\text{actual}])^2 \cdot W_i = G_E$$

$$(R_n' - R_c)^2 \cdot W_i = R_E$$

$$(B_n' - B_c)^2 \cdot W_i = B_E$$

where  $G_n'$ ,  $R_n'$  and  $B_n'$  are expected color values,  $G_c$ ,  $R_c$  and  $B_c$  are actual color values, and  $W_i$  is a weighting factor for each of colors  $i$ ,  $i$  varying from 1-j colors, and  $G_E$ ,  $R_E$ , and  $B_E$  are minimized for each of the plurality of colors.

10. (currently amended) ~~A system~~ An apparatus according to claim 6 wherein said color correction matrix has some colors weighted more than ~~others of the~~ other colors.

11. (currently amended) ~~A system~~ An apparatus as in claim 10 wherein red, green, and blue are weighted higher than other colors ~~dull colors such as brown~~.

12. (currently amended) ~~A system~~ An apparatus as in claim 6 wherein said color correction matrix is adjusted according to all colors of a ~~chromaticity~~ chromaticity chart.

13. (currently amended) A method of correcting an image from an image sensor, comprising:

dividing the image sensor into a plurality of pixels;

placing color separators over said plurality of pixels, such that each pixel receives incoming light that is filtered to emphasize one color component; and

obtaining a color correction matrix for said pixels, said color correction matrix being one which takes into account correction of incoming radiation for at least ~~3~~ three primary colors, and ~~2 other two other non-primary colors other than said primary colors, wherein said non-primary colors are weighted such that said correction matrix corrects for some of said non-primary colors more than said primary colors.~~

14. (canceled)